

## AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listing, of the claims in the application:

### Listing of Claims:

- 1.-27. (Canceled).
28. (Previously Presented) A Method for screening biological sample for the presence of the metabolic syndrome in the sample donors, the method comprising :
- a) irradiating the biological sample by radiation;
  - b) capturing the radiation which has interacted with the biological sample;
  - c) evaluating the captured radiation for spectral characteristics; and
  - d) classifying the biological sample according to the presence of the metabolic syndrome based on the biological sample's spectral characteristics.
29. (Previously Presented) Method according to claim 28, wherein the radiation is infrared radiation in the wavelength range of 2.5 to 25 micrometer.
30. (Previously Presented) Method according to claim 28, wherein the radiation is visible or near infrared radiation in the wavelength range of 0.4 to 1.5 micrometer and the type of interaction is Raman scattering.
31. (Previously Presented) Method according to claim 28, wherein the biological sample is blood or a blood derivative as plasma or serum.
32. (Previously Presented) Method according to claim 28, wherein the biological sample is applied to a sample carrier prior to step of irradiation.
33. (Previously Presented) Method according to claim 28, wherein the biological sample is dried prior to step a).
34. (Previously Presented) Method according to claim 28, wherein the biological sample is applied to a flow cell prior to irradiation with a small thickness preferable in a range of 6 to 30  $\mu\text{m}$ .
35. (Previously Presented) Method according to claim 28, wherein the captured radiation is reflected or transmitted infrared radiation or Raman scattered radiation.
36. (Previously Presented) Method according to claim 32, wherein the carrier has a reflective surface.

37. (Previously Presented) Method according to claim 32, wherein the carrier has an infrared-transmissive plastic foil.
38. (Previously Presented) Method according to claim 28, comprising the following training steps for said classification:  
performing steps a) and b) with samples of known classification; and  
training an evaluation program so that it assigns the samples to the known classifications.
39. (Previously Presented) Method according to claim 38, wherein a reference database is generated from the biological samples of known classification.
40. (Previously Presented) Method according to claim 38, wherein parameters of an evaluation function are set during the training.
41. (Previously Presented) Method according to claim 28, wherein the classification involves the application of an evaluation function with predetermined parameters to the spectral characteristics of the biological sample of unknown classification.
42. (Previously Presented) Method according to claim 28, wherein the classification comprises a multivariate evaluation.
43. (Previously Presented) Method according to claim 28, wherein the evaluation uses spectral information from molecular vibration frequencies of the sample corresponding to a region of 1500 to 1800 wavenumbers (region II).
44. (Previously Presented) Method according to claim 28, wherein said evaluation uses spectral information from molecular vibration frequencies of the sample corresponding to a region of 2300 to 3200 wavenumbers (region III).
45. (Previously Presented) Method according to claim 28, wherein said evaluation uses spectral information from molecular vibration frequencies of the sample corresponding to a region of 1000 to 1300 wavenumbers (region I).
46. (Previously Presented) Method according to the claim 28, wherein the evaluation uses spectral information from molecular vibration frequencies of the following combinations:  
vibration in region 1500 to 1800 wavenumbers and 2300 to 3200 wavenumbers  
vibration in region 1000 to 1300 wavenumbers and 2300 to 3200 wavenumbers  
vibration in region 1000 to 1300 wavenumbers and 1500 to 1800 wavenumbers  
vibration in region 1000 to 1300 wavenumbers, 1500 to 1800 wavenumbers and 2300 to 3200 wavenumbers.

47. (Previously Presented) A System for screening biological samples for the presence of the metabolic syndrome in sample donors, comprising:
- a) a radiation source for irradiating the sample;
  - b) a detector for capturing radiation which has interacted with the sample;
  - c) an evaluation unit for evaluating the captured radiation for spectral characteristics;
  - d) a classification unit for classifying the sample according to the presence of the metabolic syndrome based on the spectral characteristics.
48. (Previously Presented) System according to claim 47, further comprising a sample carrier onto which sample is applied prior to irradiation.
49. (Previously Presented) System according to claim 48, wherein the carrier has a diffusely reflective surface.
50. (Previously Presented) System according to claim 47, comprising a flow cell into which a sample is applied prior to radiation.
51. (Previously Presented) System according to claim 47, wherein the radiation source and the detector are arranged to perform infrared absorption measurement or Raman scattering measurement.
52. (Previously Presented) System according to claim 47, wherein the classification unit comprises a microprocessor and a program unit being programmed to perform the classification.
53. (Previously Presented) System according to claim 52, wherein the program unit being programmed with a multivariate evaluation based on parameters determined on samples of known classification.